

A

Element cell and non-element cell

11 = E_1 element cell

12 = E_2 element cell

13 = saturated element cell B_s

14 = non-element cell B_o

B

Diagram explaining the concept of 2-element positive/negative information combined element information and non-element

11 = E_1 = basic numeral positive information (+1)

12 = E_2 = basic numeral positive information (-1)

13 = B_s = saturated zero information (0)

14 = B_o = function code

C

Diagram explaining the concept of 2-element positive, combined element information, and non-element

11 = E_1 basic numeral information (1)

12 = E_2 twofold numeral information (2)

13 = B_s = zero information (0)

14 = B_o = function code

Figure 1

A

N-ary matrix showing power number

B

N-ary basic number matrix

Figure 2

A

Element cell information of positive, negative binary matrix

(Element cell information)

E_1 element cell	$1 \times 2^{n-1}$	...	4		2		1		1/2	...	1×2^{-n}	Basic numeral
E_2 element cell	$-1 \times 2^{n-1}$	...	-4		-2		-1		-1/2	...	1×2^{-n}	-onefold numeral
Combined element cell	B_s	...	0		0		0		0	...	B_s	Saturated element cell

B

Element cell information of positive, negative binary power number matrix

(Element cell information)

E_1 element cell												Basic numeral
E_2 element cell												-onefold numeral
Combined element cell												Saturated element cell

C

Element cell information of positive, negative ternary power number matrix

(Element cell information)

E_1 element cell	$1 \times 3^{n-1}$											Basic numeral
E_2 element cell												-onefold numeral

Figure 7

A

Positive, negative quaternary matrix element cell information
(Element cell information)

[illegible]

B

Diagram explaining the concept of numeral information element cell and numeral complement element cell

```

21 = E21 element cell = 1
22 = E22 element cell = 2
23 = E23 element cell = 3
44 = numeral complement element cell = 3
45 = numeral complement element cell = 2
46 = numeral complement element cell = 1
25 = saturated element cell Bs = 0
14 = non-element cell Bo = function

```

Figure 8

A

Positive senary matrix element cell information
(Element cell information)

[illegible]

B

Diagram explaining the concept of 3-element element cell and non-element

```

21 = E21 element cell = 1
22 = E22 element cell = 2
23 = E23 element cell = 3
44 = B'o (function code)
25 = saturated element cell Bs
14 = non-element cell Bo

```

Figure 9

Positive septenary matrix element cell information
(Element cell information)

E ₂₁ element cell																		Basic numeral
E ₂₁ element cell																		Twofold numeral
E ₂₂ element cell																		Fourfold numeral
2 combined element cells																		E ₂₁ , E ₂₂ element cells combined
																		E ₂₁ , E ₂₃ element cells combined
																		E ₂₂ , E ₂₃ element cells combined
3 combined element cells																		Saturated element cell

Figure 10

Positive, negative septenary matrix element cell information
(Element cell information)

E ₂₁ element cell																		Basic numeral
E ₂₁ element cell																		Twofold numeral
E ₂₂ element cell																		-threefold numeral
2 combined element cells																		E ₂₁ , E ₂₂ element cells combined
																		E ₂₁ , E ₂₃ element cells combined
																		E ₂₂ , E ₂₃ element cells combined
3 combined element cells																		Saturated element cell

Figure 11

Diagram explaining the concept of 4-element element cell and non-element

51 = single element cell

52 =

53 =

54 =

55 = 2 combined element cells

56 =

57 =

58 =

59 =

60 =

511 = 3 combined element cells

512 =

513 =

514 =

515 = 4 combined element cells

14 = non-element cell Bo

Figure 12

Positive 15-ary matrix element cell information
(Element cell information)

E ₅₁ element cell																		Basic numeral
E ₅₂ element cell																		Twofold numeral
E ₅₃ element cell																		Fourfold numeral
E ₅₄ element cell																		Eightfold numeral
2 combined element cells																		Threefold numeral
																		Fivefold numeral
																		Sixfold numeral

3 combined element cells														Ninefold numeral
														Tenfold numeral
														Twelvefold numeral
														Sevenfold numeral
														Elevenfold numeral
														Thirteenfold numeral
														Fourteenfold numeral
4 combined element cells														Saturated element cell

Figure 13

Positive, negative 15-ary matrix element cell information
(Element cell information)

E ₅₁ element cell														Basic numeral
E ₅₂ element cell														Twofold numeral
E ₅₃ element cell														Fourfold numeral
E ₅₄ element cell														-sevenfold numeral
2 or 3 combined element cells														Numeral complement
4 combined element cells														Saturated element cell

Figure 14

Number of Cells	Data Volume		Data Scaling Factor (Bit ₃ /bit)
	bit cell	Bit ₃ cell	
1	2	3	1.5
4 (1/2 byte)	16	81	5.0
8 (1 byte)	256	6,561	25.6
16 (2 bytes)	65,536	43,046,721	657.0
32 (4 bytes)	4,294,967,296	2,467,446,545,851,841	574,492.0

Figure 15

Combination in which non-element cell Bo has trigger function (function 1)

Element cell 172 = Element cell

174 = "

176 = "

178 = "

14 = Non-element Bo

Non-element Bo

Figure 16

Combination in which non-element Bo has pre-element cell directive function (part 1)

```
181 = element cell
182 =      "
183 =      "
14  = non-element Bo
```

Figure 17

Combination in which non-element Bo has pre-element cell directive function (part 2)

```
191 = element cell
192 =      "
193 =      "
194 =      "
14  = non-element Bo
196 = element cell end code
```

Figure 18

Diagram showing example of design code and code design

```
Element cell
Bo = non-element cell
```

Figure 19

Graphic or character division code structure

```
Element cell
Non-element cell
```

Figure 20

Diagram of compound eye light-receiving recognition system

```
Projected LED light
Magenta filter
Light-receiving
Photo-Tr1
Photo-Tr2
```

Cyan filter

Hue element cell and non-element cell

Figure 21

Threshold value (2-value data) of single color, mixed colors from filter

transmission of reflected colored light

Transmission	Reflection	Transmission
Single color (bright)		Mixed color (dark)
Threshold value		Threshold value
Mixed color (dark)		
Single color (bright)		
Magenta filter	Data sheet hue	Cyan filter

Single color = magenta (bright)	Single color = cyan (bright)
Mixed color = blue-violet (dark)	Mixed color = blue-violet (dark)

E_1 = magenta
 E_2 = cyan
 B_s = blue-violet
 B_o = space

Figure 22

Element cell and space		E_1 element cell	E_2 element cell	B_s combined element cell	Non-element cell
Recognition data (2-value)	Photo-Tr1	1	0	0	1
	Photo-Tr2	0	1	0	1
Ternary element cell information		1	2	0	space

Figure 23

Diagram explaining element cell recognition by the additive color mixing method

Element cell	Filter	Photoelectric level
Magenta	Green	(magenta recognition)
Mixed color	Space	
Cyan	Red	(cyan recognition)

Figure 24

Diagram explaining the concept of intensity structure of light reflectance by concentration and density

Concentration A Concentration C Concentration B

Concentration A element cell = $1/3 = 1$ information
 Concentration B element cell = $2/3 = 2$ information
 Concentration C element cell = $3/3 = 0$ information
 Non-element cell (space) = B_o = function

Figure 25

Explanatory diagram showing the relationship between recognition threshold value and photoelectric effect level

Threshold value setting line				
Infinite	Numerous	Few	None (blank)	Theoretical
Level 1	Level 2	Level 3	Level 4	Photoelectric effect
Positive data				
Negative data				
Concentration ratio				
Element cell				
Ternary symbol		Space		
Theoretical				
None (blank)	Few	Numerous	Saturated	

Figure 26